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EXAMINER

TODD, GREGORY G

ART UNIT

PAPER NUMBER

2157

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/681,309

Applicant(s)

KENNAMER ET AL.

Examiner

Gregory G Todd

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. This is a second office action in response to applicant's amendment filed, 14 October 2004, of application filed, with the above serial number, on 16 March 2001 in which claims 6, 10, and 19 have been amended. Claims 1-21 are therefore pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Le et al (hereinafter "Le", 6,145,089).

Le teaches the invention as claimed including server fail-over recovery (see abstract).

As per Claim 1, Le teaches a system comprising:

a plurality of servers organized into one or more failover groups and over which data is partitioned, each server usually processing client requests for data of a respective type and processing the client requests for data other than the respective

type for other of the plurality of servers within a same failover group when the other of the plurality of servers within the same failover group are offline (at least col. 3, lines 21-22; col. 2, lines 22-64; servers providing different services, redistributing services to other servers upon failure); and,

a master server managing notifications from one or more clients and from the plurality of servers as to whether servers are offline, the master server verifying whether a server is offline when so notified, and where the server has been verified as offline, so notifying the plurality of servers other than the server that has been verified as offline (at least col. 4, lines 10-36; role manager managing heartbeat messages / server status).

As per Claim 2.

Le teaches the system of claim 1, further comprising a database storing data responsive to client requests of any respective type and which has been partitioned over the plurality of servers, each server caching the data stored in the database responsive to client requests of the respective type (at least col. 2, lines 21-63; failover server redistribution of service groups).

As per Claim 3.

Le teaches the system of claim 2, wherein each server further temporarily caches the data stored in the database responsive to client requests other than the respective type when the other of the plurality of servers within the same failover group are offline (at least col. 2, lines 21-63; failover server redistribution of service groups).

As per Claims 4 and 8.

Le teaches the system of claim 1, wherein the one or more failover groups consists of one failover group, such that the plurality of servers are within the one failover group (at least col. 3 line 64 - col. 4 line 35).

As per Claims 5 and 9.

Le teaches the system of claim 1, further comprising one or more clients sending requests to the plurality of servers (at least col. 3, lines 47-67).

As per Claim 6, Le teaches a system comprising:

a plurality of servers organized into one or more failover groups, each server usually processing client requests of a respective type and processing the client requests other than the respective type for other of the plurality of servers within a same failover group when the other of the plurality of servers within the same failover group are offline(at least col. 3, lines 21-22; col. 2, lines 22-64; servers providing different services, redistributing services to other servers upon failure); and,

a database storing data responsive to client requests of any respective type and which is partitioned for caching over the plurality of servers, each server caching the data stored in the database responsive to client requests of the respective type, each server also temporarily caching the data stored in the database responsive to client requests other than the respective type when the other of the plurality of servers within the same failover group are offline (at least col. 2, lines 21-63; failover server redistribution of service groups).

As per Claim 7.

Le teaches the system of claim 6, further comprising a master server managing notifications from one or more clients and from the plurality of servers as to whether servers are offline, the master server verifying whether a server is offline when so notified, and where the server has been verified as offline, so notifying the plurality of servers other than the server that has been verified as offline (at least col. 4, lines 10-36; role manager managing heartbeat messages / server status).

As per Claim 10, Le teaches a computer-readable medium having instructions stored thereon for execution by a processor to perform a method, wherein Le teaches:

determining whether a data server is in a failover mode (at least col. 4, lines 30-35);

in response to determining that the data server is not in the failover mode, sending a request to the data server (at least col. 4, lines 1-13; receiving healthy heartbeat signal);

determining whether sending the request was successful (disruption determination) (at least col. 4, lines 10-36; col. 2, lines 37-63);

in response to determining that sending the request was unsuccessful, entering the failover mode for the data server (at least col. 4, lines 10-50; col. 2, lines 37-63);

notifying a master server that sending the request to one of a plurality of data servers was unsuccessful (role manager not receiving heartbeat message) (at least col. 4, lines 10-36);

determining a failover server (elected server) (at least col. 2, lines 37-63); and,

sending the request to the failover server, capable of processing requests for partitioned data of a respective type and partitioned data other than its respective type (eg. client accessing intranet through elected failover Server A after failure of Server C) (at least col. 2, lines 22-63; col. 3, lines 21-22) .

As per Claim 11.

Le teaches the medium of claim 10, the method initially comprising determining the data server as one of a plurality of data servers to which to send the request (eg. accessing intranet web server or customer support) (at least col. 2, lines 23-55).

As per Claim 12.

Le teaches the medium of claim 10, the method initially comprising in response to determining that sending the request was unsuccessful, repeating sending the request to the data server for a predetermined number of times, and entering the failover mode for the data server if sending the request for the predetermined number of times was still unsuccessful (at least col. 4, lines 27-36; col. 6, lines 30-36).

As per Claim 13.

Le teaches the medium of claim 10, the method further comprising in response to determining that the data server is in the failover mode, determining whether the data server has been in the failover mode for longer than a predetermined length of time (at least col. 4, lines 27-36; col. 6, lines 30-36); and,

in response to determining that the data server has not been in the failover mode for longer than the predetermined length of time, sending the request to the failover

server (receiving heartbeat message within amount of time) (at least col. 4, lines 27-36; col. 6, lines 30-36).

As per Claim 14.

Le teaches the medium of claim 13, the method further comprising in response to determining that the data server has been in the failover mode for longer than the predetermined length of time, sending the request to the one of the plurality of data servers (sending to elected server after time-out) (at least col. 4, lines 27-36; col. 6, lines 30-36);

determining whether sending the request was successful (at least col. 4, lines 27-36; col. 6, lines 30-36);

in response to determining that sending the request was unsuccessful, sending the request to the failover server (at least col. 4, lines 27-36; col. 6, lines 30-36);

in response to determining that sending the request was successful, exiting the failover mode for the data server (at least col. 4, lines 27-36; col. 6, lines 30-36); and,

notifying the master server that sending the request to the data server was successful (reception of heartbeat message from each server resulting in no disruption) (at least col. 4, lines 15-51; col. 6, lines 30-36).

As per Claims 15 and 18, Le teaches a method and computer-readable medium having instructions stored thereon for performance by a server, wherein Le teaches:

receiving a request from a client (at least col. 2, lines 37-63; col. 3, lines 47-67; eg. accessing intranet web server or customer support);

determining whether the request is of a type usually processed by the server (at least col. 2, lines 22-63; eg. intranet);

in response to determining that the request is of the type usually processed by the server, processing the request (at least col. 2, lines 22-63; eg. accessing intranet web server 123 on Server C);

in response to determining that the request is not of the type usually processed by the server, determining whether a second server that usually processes the type of the request is indicated as offline (at least col. 2, lines 22-63; col. 4 line 61 - col. 5 line 50)

in response to determining that the second server that usually processes the type of the request is indicated as offline, processing the request (at least col. 2, lines 22-63; col. 4 line 61 - col. 5 line 50);

in response to determining that the second server that usually processes the type of the request is not indicated as offline, sending the request to the second server (at least col. 2, lines 22-63; col. 4 line 61 - col. 5 line 50);

in response to determining that sending the request was unsuccessful, processing the request (at least col. 2, lines 22-63; col. 4 line 61 - col. 5 line 50; kernel acting with heartbeat manager to elect one proper server to perform the services requested); and,

notifying a master server that the second server is offline (at least col. 4, lines 10-35; role manager sending heartbeat message / electing servers) .

As per Claim 16.

Le teaches the method of claim 15, further comprising receiving indication from a master server that the second server is online (at least col. 4, lines 10-50; heartbeat message status).

As per Claim 17.

Le teaches the method of claim 15, further comprising receiving indication from a master server that the second server is offline (at least col. 4, lines 10-50; heartbeat message status).

As per Claim 19, Le teaches a machine-readable medium having instructions stored thereon for execution by a processor of a master server to perform a method comprising:

receiving a notification that a server may be offline (at least col. 4, lines 10-50; eg. no heartbeat message);

contacting the server (at least col. 4, lines 10-50);

determining whether contacting the server was successful (at least col. 4, lines 10-50);

in response to determining that contacting the server was unsuccessful, marking the server as offline ((at least col. 4, lines 1-51; not connecting via the first heartbeat network and attempting on the second heartbeat network); and,

notifying a plurality of servers, capable of processing requests for partitioned data of a respective type and partitioned data other than its respective type, other than the server marked as offline that the server is offline (at least col. 4, lines 10-50; col. 3, lines

21-22; col. 2, lines 22-64; servers providing different services, redistributing services to other servers upon failure heartbeat message status with election of services).

As per Claim 20.

Le teaches the medium of claim 19, the method further comprising periodically checking the server that has been marked as offline to determine whether the server is back online (at least col. 4, lines 1-51; col. 5, lines 29-45; receiving updates and heartbeat messages from servers).

As per Claim 21,

Le teaches the medium of claim 20, wherein periodically checking the server that has been marked as offline comprising:

contacting the server (at least col. 6 line 47 - col. 7 line 30; role manager and service manager staying offline until recovery and transitioning online);

determining whether contacting the server was successful (at least col. 6 line 47 - col. 7 line 30; role manager and service manager staying offline until recovery and transitioning online);

in response to determining that contacting the server was successful, marking the server as online (at least col. 6 line 47 - col. 7 line 30; role manager and service manager staying offline until recovery and transitioning online); and,

notifying the plurality of servers other than the server marked as online that the server is online (at least col. 6 line 47 - col. 7 line 30; role manager and service manager staying offline until recovery and transitioning online / using heartbeat messages).

Response to Arguments

4. Applicant's arguments filed 14 October 2004 have been fully considered but they are not persuasive.

Applicants argue, substantially, that Le fails to teach data being partitioned so a server processing a certain type of client requests can process other types of client requests upon another server being offline.

Applicants arguments are not persuasive. As Applicant admits, Le teaches a group of servers offering different services and upon a failure of one server offering a service, the service being transferred to another server to provide the server to client requests. In this case the data is inherently partitioned, as Applicant notes in the background of the application, see paragraph 5, in order for the other servers to provide the other services, else the other servers would not be able to perform the service switching. Thus Le teaches partitioned data so a server processing a certain type of client requests can process other types of client requests upon another server being offline.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Newly cited Bruck et al in addition to previously cited Ishida (master computer management), Murphy et al (object-level failover specifics), Purcell et al (failover with heartbeat network), Glenn, II et al, Delaney et al, Hemphill et al, Rizvi et

Art Unit: 2157

al, Abramson et al, Schoenthal et al, and Nguyen et al are cited for disclosing pertinent information related to the claimed invention. Applicants are requested to consider the prior art reference for relevant teachings when responding to this office action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory G Todd whose telephone number is (571)272-4011. The examiner can normally be reached on Monday - Friday 9:00am-6:00pm w/ first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571)272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gregory Todd

Patent Examiner

Technology Center 2100



SALEH NAJJAR
PRIMARY EXAMINER